

What is claimed is:

1. In the processing of semiconductor devices, a system for delivering gas at a predetermined rate of flow, comprising: a flow controller having a diaphragm forming upstream and downstream chambers; a regulator for delivering gas to the upstream chamber of the flow controller at a substantially constant pressure, said controller having an outlet from the downstream chamber which is opened and closed by the diaphragm; an urging means for urging the diaphragm toward its closed position; and a valve for selectively adjusting the spring force to achieve the predetermined rate of flow without having to use a gas flow measurement device to monitor the flow rate.

2. The system as recited in claim 1, wherein said controller and said regulator are contained in a single housing.

3. The system as recited in claim 1, additionally comprising a heating element for maintaining the gas in said system at a substantially constant temperature.

4. The system as recited in claim 1, wherein the valve includes a stepper motor.

5. The system as recited in claim 1, wherein the urging means is a spring.

6. In the processing of semiconductor devices, a method for delivering gas at a predetermined rate of flow, comprising: regulating the delivery of gas to an upstream chamber of a flow controller at a substantially constant pressure, said controller having an outlet from a downstream chamber which is opened and closed by a diaphragm; and selectively adjusting spring force to achieve the predetermined rate of flow without having to use a gas flow measurement device to monitor the flow rate.

7. The method as recited in claim 6, wherein said controller is contained in a single housing with a pressure regulator.

8. The method as recited in claim 6, wherein the gas in said system is maintained at a substantially constant temperature.